

Development of Plant Science Research and Curriculum



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Grant Details

- Title: Development of Plant Science Research and Curriculum for Hispanics in Laredo, Texas
- Award No. 2006-38422-17073
- Award Amount: \$105 000
 - Almost all for equipment & supplies
- Period of Performance: 07/15/2006 through 7/14/2008

CSREES/USDA Relevant Areas

- Strategic goal 1: to enhance economic opportunities for agricultural producers
 - objective 1.3: to provide science-based knowledge to generate new or improved high-quality products and processes to expand markets for the agricultural sector
 - objective 1.4: to provide science-based knowledge, and education to facilitate risk management by farmers and ranchers
- Strategic goal 5: to protect and enhance the nation's natural resource base and environment
 - objective 5.1: to provide science-based knowledge and education to improve the management of forests and rangelands.

CSREES/USDA Relevant Areas

- Direct support for these areas can be achieved through undergraduate and graduate research projects specifically aligned with advancing basic and applied agricultural scientific knowledge
- Indirect support for these areas can be achieved through its effort to provide the fundamental role of educating students who will become the next generation of plant scientists

Educational Need Areas Addressed

- **Curricula Design (a).** New curriculum will be developed and existing curriculum will be augmented
- **Scientific Instrumentation for Teaching (d),
Student Experiential Learning (e).** The equipping of the new Lamar Bruni Vergara Science building will create a student resource for both the undergraduate and graduate coursework mentioned above, as well as for undergraduate and graduate student faculty supervised research

Beneficiaries / Justification

- Little history of plant science curriculum or research in area institutions
 - TAMIU & LCC (Laredo Community College)
- Laredo is almost entirely Hispanic
 - Nearly 95%
- Fast growing metropolitan area
 - Nearly 45% increase in past decade
- High poverty rate
 - 31% below poverty line

Location

- Laredo, TX
 - Located in South Texas on the Rio Grande
 - Pop ~ 200 000
 - Borders Nuevo Laredo, Mexico
 - Pop ~ 400 000



Texas A&M International University

- Total enrollment around 4500 students
 - 225+ Biology majors
- Rapid growth
 - Enrollment increase of over 40% since 2000



Objectives / Activities

- Objective 1. Develop core undergraduate curriculum in the plant sciences at TAMU
 - Augment existing courses
 - General Botany - BIOL 1411
 - Develop new courses
 - Plant Systematics - BIOL 4450/5440
 - Plant Physiological Ecology - BIOL 4451/5441
 - Plant Anatomy and Microtechnique - BIOL 4442/5442

Objectives / Activities

- Objective 2. Develop supervised plant science undergraduate and graduate research
 - Undergraduate research
 - Undergraduate Research – BIOL 4473
 - Graduate research
 - Research Problems in Biology – BIOL 5295
 - Thesis Research – BIOL 5398

Lamar Bruni Vergara Science building



Completed Spring 2005

Plant Science Teaching Lab



LBVSC 173

Plant Science Research Lab



LBVSC 372

Evaluation

- Final evaluation will also be conducted at the end of the project focusing on overall accomplishment relevant to project objectives.
- An outside body will conduct the final evaluation
- The evaluation plan will focus on the following:
 - The development of course and laboratory curriculum
 - The implementation, use, and productivity of plant science research facilities by undergraduate and graduate students

Projected Outcomes

- 120 students per year in course work
 - General Botany biology major core class
 - Upper level / graduate elective
 - Physiological ecology, plant systematics, etc.
- 10 students per year is supervised research
 - Undergraduate research
 - Graduate research
 - Research Problems in Biology
 - Thesis Research